ANL- Site Dependent Issues

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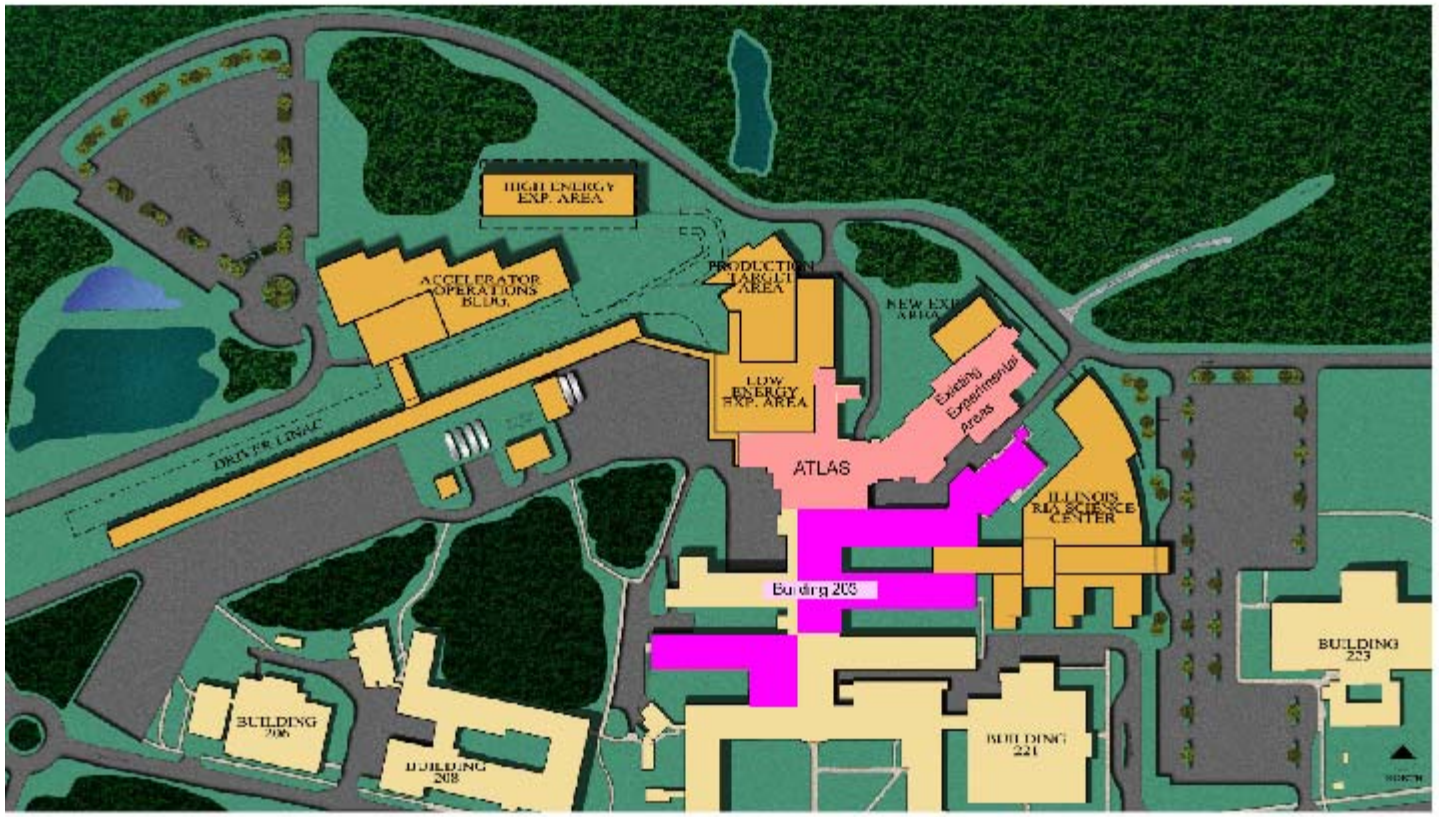
NSAC RIA Costing Subcommittee

Overview

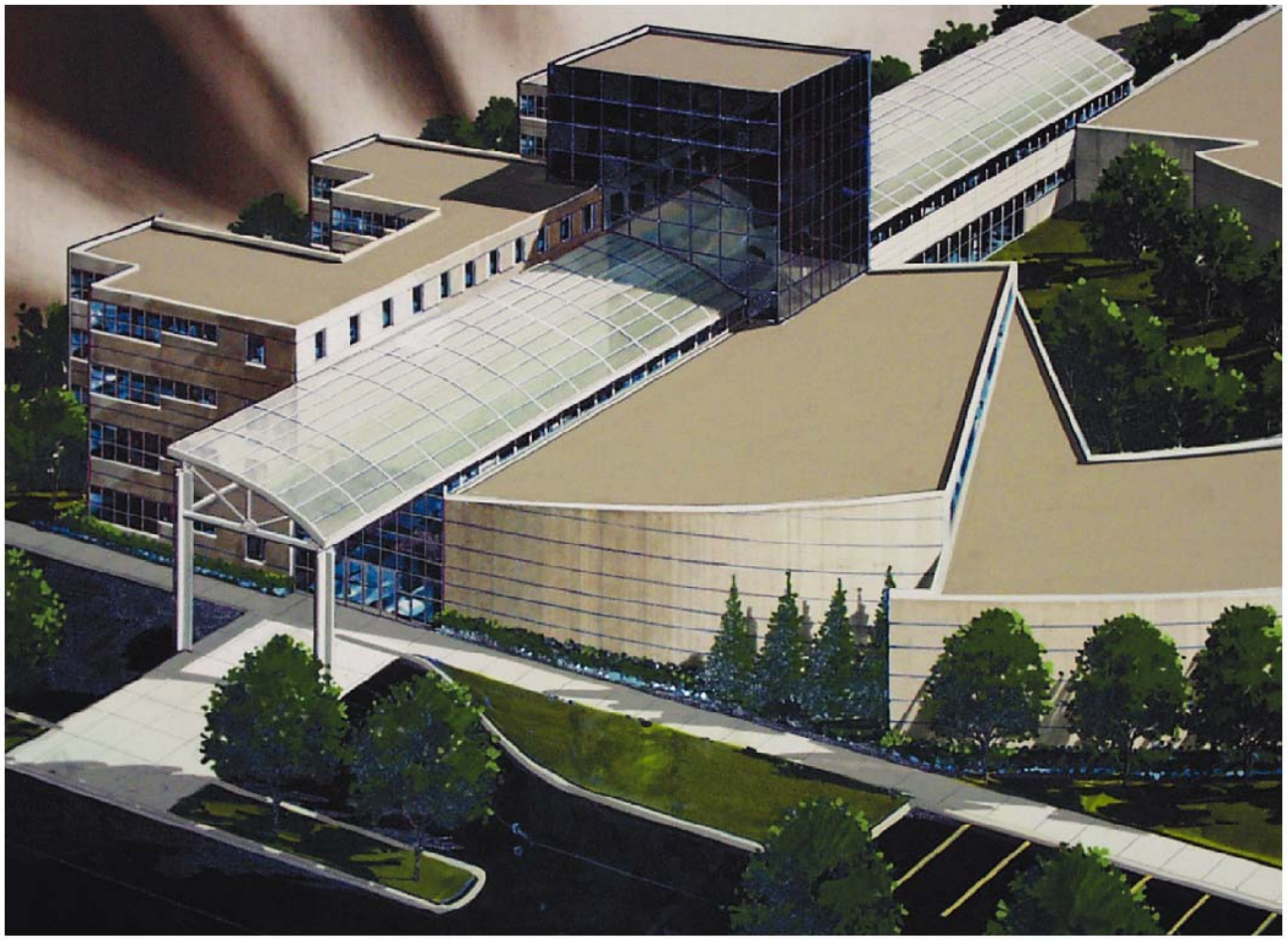
- RIA layout on ANL site
- ATLAS Accelerator and Facility
- Existing PHY Laboratory and Office Space
- Existing ANL Infrastructure and Expertise
- Summary

Site Plan for the Rare Isotope Accelerator at Argonne



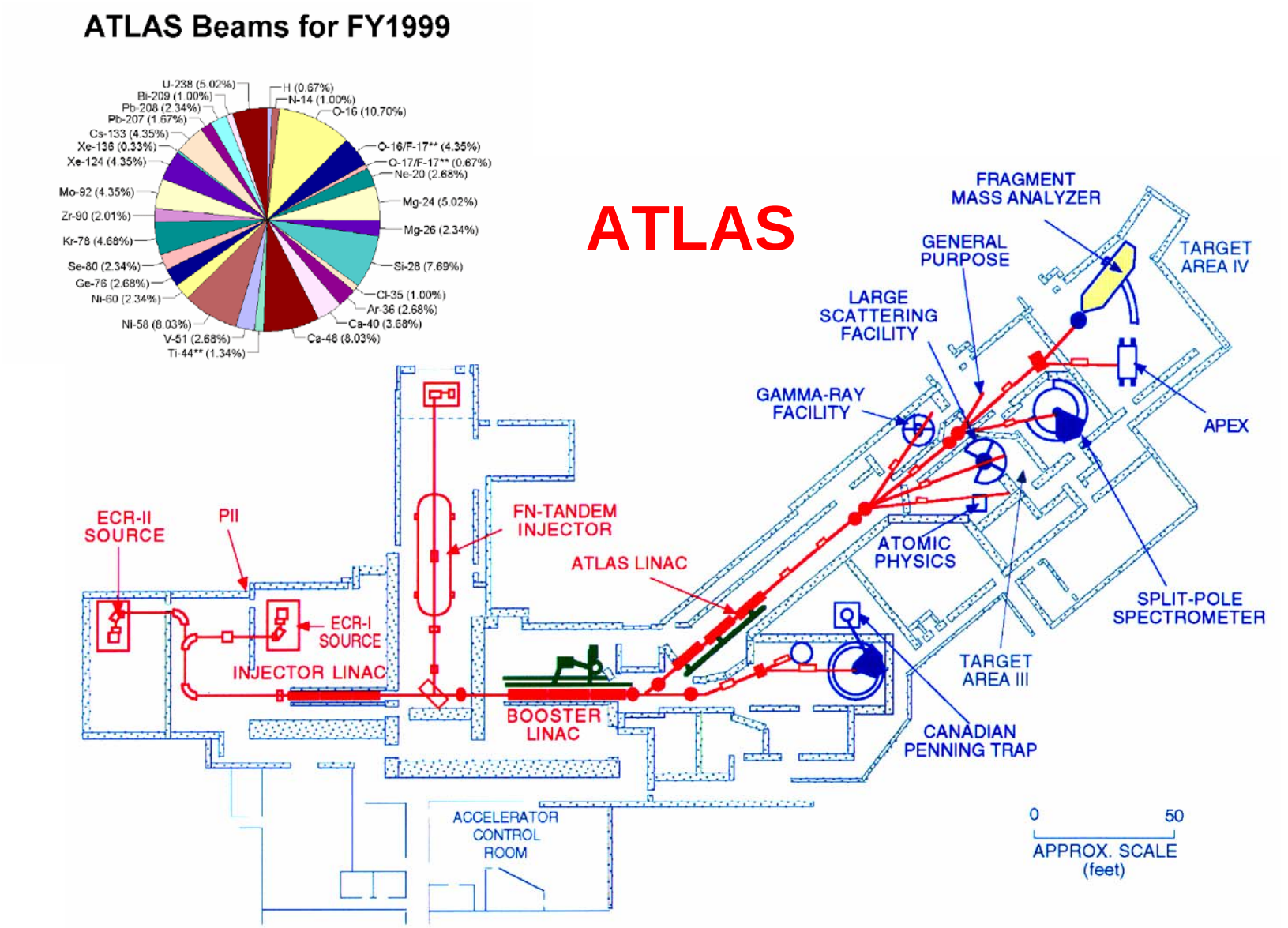
Aerial view of proposed RIA site at Argonne

State of Illinois RIA Users Building



- 69000 sq ft

$16.6M


ATLAS Beams for FY1999
U-238 (5.02%)
Bi-209 (1.00%)
Pb-208 (2.34%)
Pb-207 (1.67%)
Cs-133 (4.35%)
Xe-136 (0.33%)
Xe-124 (4.35%)
Mo-92 (4.35%)
Zr-90 (2.01%)
Kr-78 (4.68%)
Se-80 (2.34%)
Ge-76 (2.68%)
Ni-60 (2.34%)
Ni-58 (8.03%)
V-51 (2.68%)
Ti-44** (1.34%)
H (0.67%)
N-14 (1.00%)
O-16 (10.70%)
O-16/F-17** (4.35%)
O-17/F-17** (0.67%)
Ne-20 (2.68%)
Mg-24 (5.02%)
Mg-26 (2.34%)
Si-28 (7.69%)
Cl-35 (1.00%)
Ar-36 (2.68%)
Ca-40 (3.68%)
Ca-48 (8.03%)
ATLAS
FRAGMENT MASS ANALYZER
GENERAL PURPOSE
TARGET AREA IV
LARGE SCATTERING FACILITY
GAMMA-RAY FACILITY
APEX
ECR-II SOURCE
PII
FN-TANDEM INJECTOR
ATLAS LINAC
ATOMIC PHYSICS
SPLIT-POLE SPECTROMETER
ECR-I SOURCE
INJECTOR LINAC
TARGET AREA III
BOOSTER LINAC
CANADIAN PENNING TRAP
ACCELERATOR CONTROL ROOM
0
50
APPROX. SCALE (feet)

Replacement value of ATLAS

- Technical Components* $27.3M
- ATLAS Area Buildings* $11.4M
- Full ATLAS stable beam capability simultaneous with RIA experiments in stopped, Astrophysics and in-flight areas.

*includes project management and contingency

Value of Other ANL RIA Related Space and State Contributions

- Building 203 offices and lab space devoted to ATLAS research
  35000 ft^2 — $8.5M

- Dynamitron high bay staging area
  3000 ft^2 — $0.8M

- State of Illinois User Building
  69000 ft^2 — $16.6M

Existing ANL Infrastructure and Facilities

- Radioactive Waste Storage Facility
  Category 2 Non-Reactor Nuclear Facility
- Fire and Emergency Response (Hazardous Materials)
- Separate Laboratory Water and Sewer Systems
- Waste Management Department
- Broad ES&H and Health Physics expertise
- Site wide access control and security
- 203 Library- Research library services and existing holdings
- Cafeteria and Guest House Dining
- Laboratory Administrative Services
- Maintenance Services
- Machine, Electronic and Specialty Shops
- Telecommunications and Networking Systems

Existing Laboratory Expertise

- Experience at operating large user facilities
  - Potential to matrix significant services-- synergy with APS and IPNS
- Experience at operating non-reactor nuclear facilities
  - 2 Category 2 and 2 Category 3 (like RIA) on site
- Alpha-Gamma Hot Cell Facility
  - National facility for research on highly irradiated materials
- Analytical Chemistry Laboratory
- Robotics Laboratory
  - Planning and control of remote handling systems
- Advanced Materials Fabrication Facility
- On-site treatment of liquid metal mixed wastes
  - Alkali Metal Passivation Booth

Summary

- The Argonne site brings significant added value to the RIA project
- ATLAS and PHY office and lab space

a) included in base cost	$39M
b) existing PHY offices and labs	$9M
subtotal	$48M

- State committed office and lab space $16.6M
- Existing laboratory infrastructure provides essential components that must be included in any site.
- We can build the facility the community wants for $644M.
- Existing PHY and laboratory expertise and services allows construction to proceed on desired time scale with minimal additional start–up costs.
  - ANL developed multi-beam Superconducting Linac Driver concept. Much of R&D to demonstrate concepts was done here.
- Existing infrastructure helps leverage operating cost.